

ABSTRACT OF THE DISCLOSURE

An integrated HVACR control and protection system includes a modular and reprogrammable design providing a plurality of possible combinations of power detection, voltage detection, run current detection, transient current detection, temperature detection, universal thermostat interface, peripheral or remote control, and local display and control. The control and protection system is capable of evaluating the relationship between real power used by an HVACR system compressor and other system operating parameters to detect problems early in the failure cycle, *i.e.*, before a failure has progressed to requiring a system shutdown or causing damage to other components. Additionally, a control system and method provide sensorless detection of various HVACR system faults, such as, for example, loss of refrigerant or a refrigerant flow restriction, that impact the relationship between real power and current, voltage, temperature, or other operating parameters. Peripheral or remote control includes wired or wireless system monitoring and parameter programming using a personal digital assistant (PDA), for example utilizing IR communication between the PDA and the control and protection system.